GEOLOGIC SUMMARY This map shows the regional geology of the Oppolzer A region of the moon, where potential Apollo landing sites 3 and 3R are located. Site 3R includes a prominent mare ridge and is of greater scientific interest (Trask, 1969). The Oppolzer A region is in Sinus Medii, near the center of the lunar earthside hemisphere; it is also important because surveyor VI successfully landed near the proposed Apollo landing areas. Sinus Medii is a relatively small, densely cratered mare surrounded by terra plains and sculptured terra (Wilhelms, 1968). The geology of the region is dominated by a relatively high density of individual craters and crater clusters. Most of the craters are less than 800 meters in diameter and appear to be of secondary and primary impact Previous studies (Wilhelms, 1968; Howard and Masursky, 1968) suggested that the Sinus Medii mare is late Imbrian in age and that the terra is pre-Imbrian. A late Imbrian age for most of the mare is confirmed by the superposition of the lower Eratosthenian cra ter Oppol zer A on the mare in the southeastern part of the region. Relatively small patches of smooth mare (E m) in the northwestern and west-central parts of the region appear to be early and middle Eratosthenian in age. The older mare material is structured by northeast- and northwest-trending linea-ments, narrow troughs, and low scarps. Their trend coincides with the lunar grid system, and many are therefore probably tectonic features. In the northern part of the region, however, there are several low ridges (Imr) as well as linear to curvilinear scarps which vary in trend from north-northwest to north northeast. Imbrian mare material between two mare ridges in the northeastern part of the area appears to be slightly elevated and bounded by lobate scarps. All of these features apparently are morphologic expressions of lava flows, probably of basaltic composition. One area of younger mare (Em) is bounded by a north-south scarp; another is adjacent to a large arcuate mare ridge (Imr), which trends generally east-west across the middle of the region. The middle part of this ridge appears to consist of a mosaic of fault blocks bounded by northeastand northwest-trending faults and fractures. Patterned ground (irregular, anastomosing ridges and troughs approximately 10 m wide and several meters high) is present on the slopes of the fault blocks and suggests the presence of a fragmental layer. Moderately abundant loose blocks and locally sharp fracture places indicate bowever that fracture planes indicate, however, this layer is thin or absent in places. The middle part of the ridge commonly is sepasurfaces which may represent lava flows extruded along faults, monoclines associated with the uplift of the ridge, or colluvium derived from the higher parts of the ridge. To the east and southwest, this ridge is less prominent. Generally circular or elliptical areas bounded by low scarps are also associated with the mare ridges. These relations suggest that vertical uplift was widespread and that the ridges formed by a combination of volcanism and tectonism probably late in the development of the mare. Numerous crater clusters and ray clusters mare ridge material. Primary sources of two distinct morphologic types of crater clusters have been tentatively identified. The rays of unit Crcc covering much of the northern part of the region, appear as a relatively high-albedo streak on full-Moon photographs. This streak radiates from the crater Copernicus; therefore, unit Crcc was probably formed by the impact of ejecta from Copernicus. The relatively high-albedo ray material, unit Crct, in the northeastern part of the region is superposed on unit Crcc and has been tentatively related to the crater Tycho. Other crater clusters are but their primary crater sources are unknown.

The mare material in the Oppolzer A region is typical of much of the lunar maria. The landing sites are of general scientific are of special geologic interest.

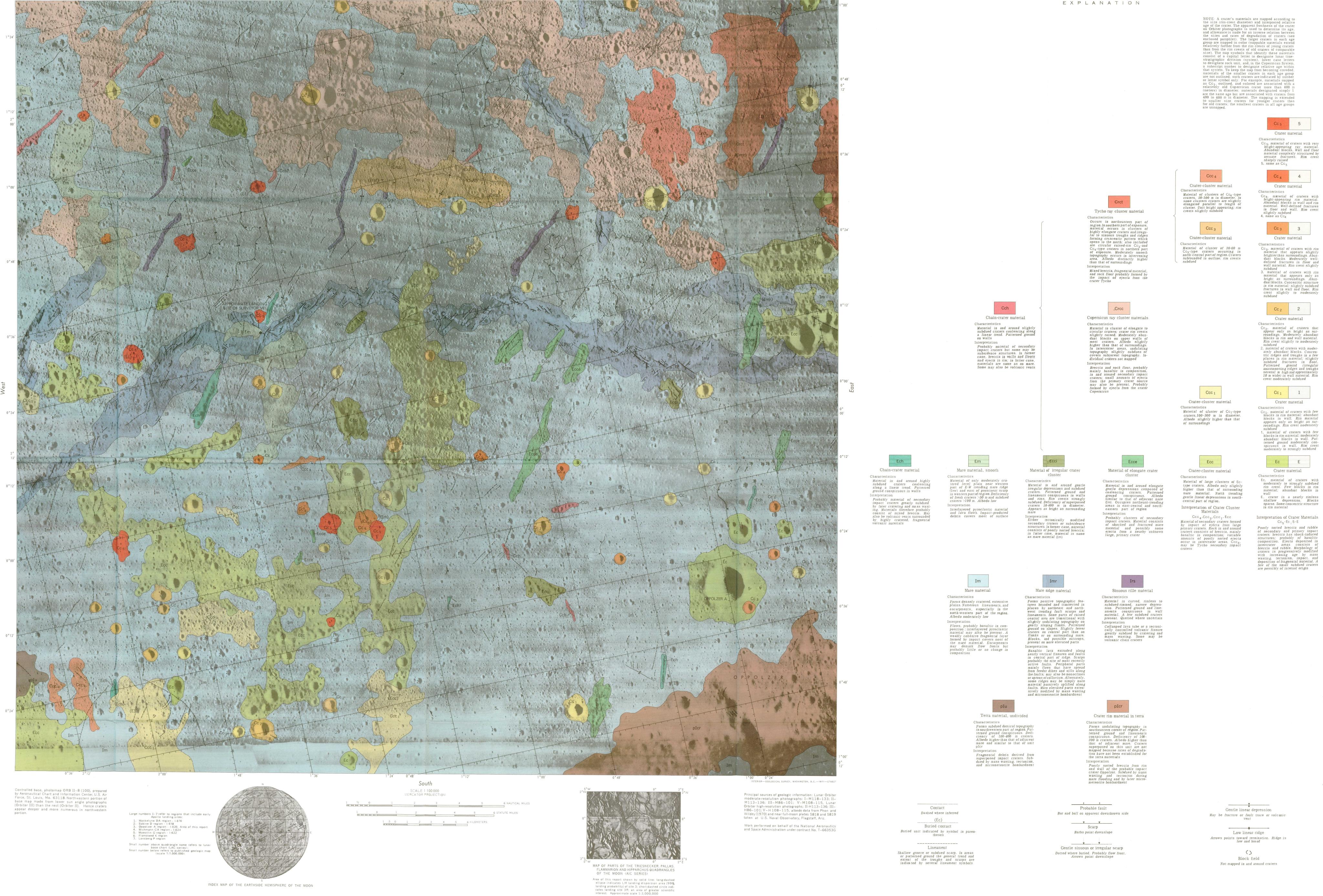
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